July 1, 1924.

1,499,899

A. S. WOLFE

SURGICAL SYRINGE

Filed Aug. 25, 1921

Fig. 1.

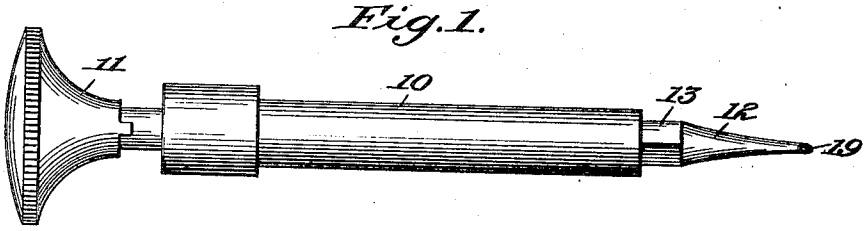


Fig. 2.

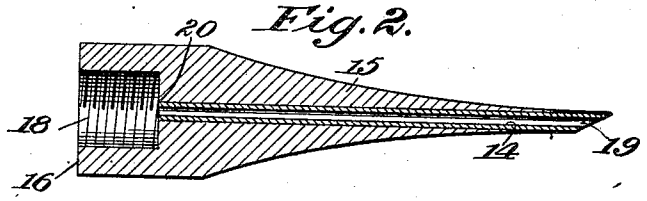


Fig. 3.

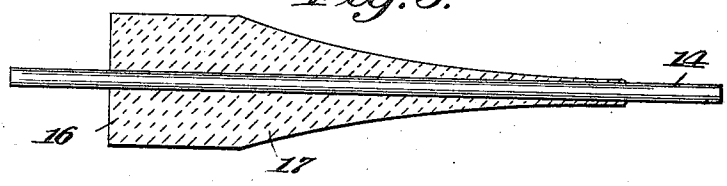
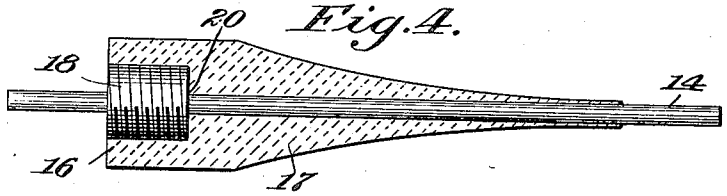


Fig. 4.



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UNITED STATES PATENT OFFICE.

ALLAN SCOTT WOLFE, OF WASHINGTON, DISTRICT OF COLUMBIA.

SURGICAL SYRINGE.

Application filed August 25, 1921. Serial No. 495,340.

To all whom it may concern:

Be it known that I, ALLAN SCOTT WOLFE, a citizen of the United States of America, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Surgical Syringes, of which the following is a specification.

My invention relates to surgical syringes, and specifically to needle points therefor.

The purpose of my invention is the provision of an instrument by means of which medicaments or the like can be introduced into subcutaneous muscular, mucous, osseous or other animal tissue, particularly for the injection of such medicament, for example, an anesthetic, into the osseous tissue of the alveolar process of the human jaw.

Another object of my invention is the provision of a needle point of relatively great strength and rigidity, which can be forced deeply into such osseous tissue without injury to said point, and which may be sterilized under conditions of temperature and in chemical media such as would rapidly destroy instruments of this type now in use (of steel or the like), and which does not tarnish or otherwise deteriorate on exposure to the action of the elements.

The needle point forming the subject of my invention is composed of a refractory material, that is, one substantially resistant to the action of high temperatures, and temperature changes, for example, a metal or metallic alloy, and hence may be sterilized directly in the flame and immediately cooled, and is not attacked by any of the ordinary sterilizing agents or chemicals.

The invention is illustrated on the accompanying drawing, in which:

Fig. 1 is an elevation of a syringe provided with the needle point of my invention.

Fig. 2 is a longitudinal section through the needle point.

Fig. 3 is a longitudinal section showing the central tube with wax model during process of manufacture.

Fig. 4 is a longitudinal section illustrating a modification of Fig. 3.

10 designates the usual syringe barrel provided with the plunger 11 slidable therein from one end of said barrel 10, the opposite end thereof having detachably connected therewith, by means of a screw thread for example, my new needle point 12, one end 13 of which is contoured so as to suitably engage with an instrument by means of which it may be screwed and unscrewed on the barrel.

The new needle point is illustrated in longitudinal section on Fig. 2, wherein 14 is a central hollow needle of highly refractory material, for example, platinum, and 15 a substantially conical reinforcement or body integrally encompassing said needle 14 and tapering to the point 19 from the hub 16, which is internally screw threaded or otherwise prepared for attachment to the barrel 10.

The following is the method of manufacturing my new needle point. The reinforcement or body 17 is modelled in wax around a very fine platinum tube, for example, about 25 gauge, which latter projects from both ends of the wax model; the whole is embedded in a suitable refractory investment compound, the wax removed, preferably by the action of direct heat or hot water, and the metallic body or reinforcement 17 cast onto the platinum tube by any of the known methods. After cooling and removal from the investment, and cutting off the projecting ends of the platinum needle, the hub 16 is suitably bored and provided with an internal screw thread 18.

Instead of providing the screw thread 18 as above described, this may be done by attaching an internally threaded ferrule 20 of refractory material, for example, platinum, iridium or the like, to the needle tube 14, the wax model 17 being built up over and temporarily attaching said ferrule and tube, the whole invested and integrally united by casting the body or reinforcement 17 thereon.

The body or reinforcement 17 is composed of a material which is not affected by high temperatures or temperature variations, is not attacked by any of the ordinary sterilizing agents or even powerful acids or alkalies, and is relatively of great strength and rigidity. Among a number of materials I have found most suitable for this purpose is a metallic alloy consisting in whole or in greater part of the noble metals, to which, in some cases, may be added relatively slight proportions of a base metal. The well known dental spring or clasp gold, or other alloys of gold with platinum, palladium,

osmium or other members of the platinum group are well suited to the purpose, a preferred alloy being known as "Ney-Oro F" (Weinstein's Formula), consisting of:

	Per cent.
Gold	64.00
Silver	1.50
Copper	7.00
Platinum	11.00
Palladium	16.50

A needle point composed of such material is comparable in strength with any made of ferrous metals, will not tarnish or otherwise deteriorate on exposure to the elements or powerful chemicals and is resistant to the action of temperatures up to 1000° C. and to rapid temperature variations. The needle may also be made without the central tube 14, that is, wholly of the gold-platinous or gold-platinous-base metal alloy, or otherwise, without exceeding the scope of the invention.

I claim:

1. In a surgical syringe, a point adapted to be inserted into osseous tissue, said point being formed of a highly refractory metal integrally reinforced with an alloy of a precious metal.

2. In a surgical syringe, a point adapted to be inserted into osseous tissue, said point consisting of a platinum tube integrally reinforced over its entire length with an alloy containing a major portion of gold.

3. In a surgical syringe point adapted to penetrate osseous tissue, a central longitudinal bore formed of a metal of the platinum group, said bore being integrally encompassed over its length by a relatively thick reinforcement of an alloy containing a major portion of gold.

4. A needle point for surgical syringes adapted to be inserted into osseous tissue, formed of a central platinum tube having an external tapered reinforcement of an alloy comprising gold and a platinous metal.

5. A needle point for surgical syringes adapted to be inserted into osseous tissue, formed of a platinous metal central tube externally reinforced with an alloy comprising gold, a platinous metal and a base metal.

In testimony whereof I affix my signature.

ALLAN SCOTT WOLFE